# The Teachers' Sense of Multicultural Efficacy Scale: Construction and Validation

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## Abstract

Sense of efficacy, or one's belief in his or her ability to facilitate change, has been cited as a predictor of many valuable educational outcomes for both students and teachers. Scales designed to measure teachers' sense of efficacy have been developed in an effort to indentify both the best predictors of student and teacher success and reliable indicators of those predictors. The purpose of the current study was to develop a measure of teachers' sense of efficacy for multicultural education. Whereas previous scales have measured only teachers' sense of efficacy for general teaching tasks, they have not investigated the myriad aspects of multicultural education that may impact teacher efficacy. Because strong teacher efficacy has been linked, for example, with high student achievement, low efficacy for certain aspects of education may translate to low achievement. The Teachers' Sense of Multicultural Efficacy Scale (TSMES) provides a manner of measuring teacher efficacy specifically for educating diverse students and for education about issues relating to diversity.

## Introduction

Research on self efficacy, or one's belief about his or her ability to bring about a desired outcome, has roots in Albert Bandura's Social Cognitive Theory (SCT). SCT posits that all human behavior is reciprocally connected to personal and environmental contexts (Bandura,

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1986). In other words, self-efficacy beliefs are drawn from the interaction of behavior, individual characteristics and environmental contexts. These three factors are analogous to legs of a tripod; without one, the others cannot stand. Furthermore, when one is altered—even slightly—the others must shift as well. As a result, the context in which teachers must be competent should play a central role in any investigation of sense of self-efficacy. Until now, research has fundamentally focused on general teacher efficacy, the extent to which teachers in any setting believe they can bring about a desired outcome (for a review, see Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Although scales have been administered in a variety of cultural settings and adapted to capture such constructs as collective efficacy (Goddard, Hoy, & Woolfolk Hoy, 2000, 2004), they have not examined the multicultural contexts in which most teachers find themselves. As is clear from the very foundation of teacher efficacy—as well as later warnings from Bandura (Bandura, 1997)—measures of self efficacy must take into account the context in which behaviors take place.

One general premise guides the definition of *context* in self efficacy measurement: changes in context must be reflected in the content of the scale rather than the composition of participants. For example, an ideal measure of sense of math teaching efficacy will include items directly related to the teaching of math (e.g. How much can you do to teach the Pythagorean Theorem to a student who cannot discriminate between a triangle and a square?). By the same token, an ideal measure of sense of multicultural efficacy will include items directly related to the impact of cultural identities on students (e.g. How much can you do to ensure diverse students learn about their own cultural heritage in your class?). It is important to note that multicultural education is not general education across cultural contexts. In other words, previous researchers' attempts to replicate findings of scales such as the Teachers' Sense of

Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001; see Capa, Cakiroglu, & Sarikaya, in press) are important in terms of validation of a *general* efficacy scale but do not constitute a difference in teaching context.

In any self efficacy scale, items should reflect behaviors specific to the context in which participants must perform (Bandura, 1997). Despite many social justice educators' plea for 'equal education for all,' it bears noting that some specific behaviors characterize multicultural competence and that these behaviors are not typically captured in general efficacy scales. The absence of items in this vein is not a result of intrinsic differences between culturally responsive teaching and 'regular' teaching, but instead a result of the social paradigm in which teaching has heretofore been constructed. To be clear, previous measures of teachers' sense of efficacy play an extremely important role in the conceptualization and application of teacher efficacy (see Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998) and will undoubtedly continue to contribute to a rich body of knowledge surrounding teacher and student success. It is also critical, however, to push the field forward, to challenge researchers and teacher alike to acknowledge the pervasiveness of culture.

Multiculturalism is implicated in education for a variety of reasons, three of which are highlighted for the purposes of this argument. First, the United States is growing increasingly diverse in terms of race and ethnicity (Condition of Education, 2007). Changes in neighborhood demographic make-up coupled with shifts in school assignment mean classrooms are increasingly likely to be composed of a variety of students whose heritages may be different--and may be absent from traditional information sources such as textbooks. Although these changes may bring with them welcome (and important) opportunities for students to learn from each other, transitions may be difficult and uncomfortable. Second, increasing interconnectedness

among communities around the globe makes it essential for all students to learn about an evolving group of peers. These peers are no longer constrained to classmates, but may easily include other students and even businesses thousands of miles away. Furthermore, even local diversity in race, class, gender, religion, sexual orientation, socio-economic status or other forms of identity may be more accessible through the increased presence of social networking technologies. Finally, and most importantly, U.S. schools do not successfully educate all students. In 2001, only 56% of African American public school students graduated from high school (Greene, 2002). For Latino/a students, the rate was even lower. When compared with the overall public high school graduation rate of 71%, it is clear that some students are receiving a more equal education than others. The Teachers' Sense of Multicultural Efficacy Scale (TSMES) is designed to provide some possible reasons why educational inequity is so pervasive.

## Methods

The purpose of this study was to develop a measure designed to address the cultural context of teaching efficacy. Item development was based on the premise that all classrooms are loci of cultural exchange and that teachers must develop competencies required to successfully educate all students in such a context.

### *Scale Development*

Scale development began with 50 *a priori* statements generated by the researcher but grounded in the dominant paradigms of culturally relevant pedagogy. The researcher first collaborated with two co-investigators to clarify and consolidate statements. Next, a research group composed of nine graduate students and two faculty members reviewed the items,

recommended changes, posed alternatives and provided suggestions for consolidation. As a result of these processes, the total number of items was reduced to 33.

*Pilot Study*

The resulting scale was administered along with two other alternative measures of teacher efficacy to pre-service teachers at a large mid-western university (n = 92) during July and August, 2007. Together, these scales contained 110 items and 15 general demographic questions. All future statistical references refer only to the TSMES. Reliability analysis revealed items on the TSMES are highly correlated (r = 0.95). As a result, exploratory factor analyses using principle axis factoring with direct oblimin rotation were conducted to examine the relationships among items within the scale. A structure matrix converged at $\delta < .45$ with three highly correlated factors. The analysis revealed seven factors, although further review indicated three of the seven were specific factors. Based upon this analysis, four underlying factors were identified. Factors identified in the pilot study were used only for reference in analysis of the final scale and are therefore not reported here. Total variance explained by the four-factor solution was 54.48%. The scale grand mean a 9-point Likert-type scale was $\bar{x} = 7.05$, with standard deviation s = 0.86.

In order to achieve minimum correlation with maximum variance explained, items were removed based upon both correlation analyses and factor analyses. First, items that produced correlation greater than $\alpha = .8$ were flagged for removal. Second, items that failed to load on a meaningful factor were also flagged for review. Third, items with factor loadings greater than .9 were flagged for review. Based upon analysis of the flagged items along with review of the theoretical support for factor discrimination, items were selected for inclusion in the final scale. Through these processes, the TSMES was reduced from 33 items to 15 items. Demographic

statements were reduced to 10 items. In addition to changing the items on the scale, the response structure was modified from a 9-point Likert-type scale ranging from "Nothing" to "A Great Deal" to include number of strategies associated with each descriptor. For example "Nothing" became "Nothing (No Strategies)" while "A Great Deal" became "A Great Deal (6+ strategies)." The purpose of this alteration was to clarify the distinctions among numbers on the response scale.

*Participants*

Participants included pre-service teachers from a variety of undergraduate education programs at a large, mid-western university (n = 152). Based upon the common convention in factor analysis to achieve sufficient power by multiplying the total number of items on the scale by five (i.e. 15 x 5 = 75), this sample size is ideal. Participants primarily identified themselves as white, middle class, female and Christian, with intentions of teaching in suburban schools. These demographics, while not representative of the national population, are consistent with the national trend in terms of teachers' race, class and gender (Woolfolk Hoy, Davis, & Pape, 2006).

*Procedure*

The revised TSMES was again reviewed by a research group composed of seven graduate students and two faculty members. Items were adjusted to better reflect a cohesive format and edited to reduce possible social desirability effects. Items on the final scale are presented in Table 1 along with descriptive statistics. In January and February 2008, the final scale was again administered with two other alternative teacher efficacy scales. The Teachers Sense of Efficacy Scale (TSES), a previously validated measure of general teacher efficacy, was also included in the administration. The purpose of including the TSES was twofold: first, it

provided a tool for measuring the construct validity of the TSMES; and, second, it provided a tool for a comparison of multicultural teacher efficacy with general teacher efficacy. The TSES is measured on the same 9-point Likert-type scale as the TSMES, but excludes the strategy delineation. The revised scale was analyzed in the same manner as the pilot scale.

## Findings

### *Multicultural Efficacy Scale*

Because reliability analysis suggested items on the TSMES pilot scale were extremely highly correlated, some items were altered or removed to provide a broader picture of multicultural teacher efficacy. Despite these efforts, reliability analyses on the revised TSMES revealed very high correlation (r = .94). Because the scale was reduced significantly, another exploratory factor analysis with principal axis factoring and oblimin rotation with Kaiser normalization was conducted. The resulting factor matrix revealed three factors; a structure matrix converged at $\delta$ =.65 with two highly correlated factors. Review of these factors revealed one specific factor. The two-factor solution accounted for 58.58% of the total variance. Broadly, these two factors may be understood as individual-based items and society-based items. The individual factor is composed of ten items ($\bar{x}$ = 6.86; s = 1.29, α = 0.92), focused on proximal competencies such as decreasing conflict in one's classroom. The societal factor is composed of five items ($\bar{x}$ = 5.64; s = 1.59, α = 0.86), focused on distal competencies such as changing society's view of minorities. See Table 2 for factor loadings by item and descriptive statistics by factor. A paired-samples T-test was conducted to measure whether the difference between the two factor means is statistically significant. Findings (reported in Table 3) indicate teachers feel statistically significantly more efficacious with regard to individual-based competencies than

societal-based competencies. The grand mean for the TSMES on a 9-point Likert-type scale was $\bar{x}$ = 6.46 and the standard deviation was s = 1.28.

*General Efficacy Scale*

Tschannen-Moran and Woolfolk Hoy (2001) reported reliability and factor analyses for the short form of the TSES, which was administered along with the TSMES survey. Findings for this survey are reported with those previously published. Reliability analysis produced a very high overall reliability among the 12-item short form (r = .93). The TSES typically reveals 3 distinct factors (engagement, instruction and management), but these could not be reproduced through exploratory factor analysis. Instead, principal axis factoring revealed a single factor, which accounted for 56.58% of the variance. A confirmatory factor analysis failed to produce theoretically meaningful or discriminable factors, but increased the total variance explained to 67.40%. As a result, only overall reliability can only be reported. Consistent with previously reported findings, overall mean on a 9-point Likert-type scale was $\bar{x}$ = 7.34 ($\bar{x}_{reported}$ = 7.1), and standard deviation s = .96 ($s_{reported}$ = .98).

*Comparison Measures*

The TSMES is notably distinct from the TSES in its purpose and content. It does, however, follow the same format and scoring procedure as the TSES. As a result, comparative analysis provides important insight into the relationship between general efficacy and multicultural efficacy. In order to test this relationship, grand means for the TSES and the TSMES were computed based upon individual scores for each item. The grand means were then compared using a paired-sample T-test. It is important to note this procedure was employed even though the outcome measures were different (i.e. TSMES versus TSES). This procedure was selected because it treats the scales as two measures of the same individual and therefore

accounts for the expected strong correlation between the scales. The T-test revealed a statistically significant difference between the TSMES and TSES (t = -9.49, 99% CI = -1.15 to -0.66, *df* = 145, p <.001). T-test results are provided in Table 4.

## Discussion

The Teachers' Sense of Multicultural Efficacy Scale is the first measure to replicate the format of a previously validated measure of teachers' sense of efficacy. Because the measures differ only in content, it is possible for the first time to compare general teacher efficacy with multicultural efficacy. This study also accomplishes the task of administering both scales to the same set of individuals in order to provide a robust comparison. Based upon the comparative analysis provided in the findings, individuals feel "Some" efficacy for teaching in multicultural contexts, but "Quite a Bit" of general teaching efficacy. This statistically significant finding supports the hypothesis that some students may be consistently failed by our education system because teachers lack the self-efficacy necessary to help all students to be successful.

Teachers appear to be more efficacious in general than in multicultural contexts. Multicultural contexts are clearly not understood as integral to every educational setting. As a result, teacher educators and educational researchers are charged with two important tasks: first, to help teacher develop an awareness of the omnipresence of culture in education; and, second, to help teachers develop key competencies needed to achieve educationally equitable classrooms. It cannot be denied that some students fail to receive the education they need to graduate from high school or to be successful thereafter. By the same token, recognition of the ways in which all students benefit from culturally responsive teaching is critical. Teachers have the unique opportunity to provide students access to information and experience, in addition to ensuring that essential educational needs of all students are met.

The significant difference between teachers' responses to items in the individual versus societal factor is also an important finding. Based upon analysis of means, teachers feel more efficacious when it comes to individual-based multicultural education (such as addressing classroom conflict) than society-based multicultural education (such as changing society's view of minorities). Although these findings are not surprising given obvious differences between effecting proximal and distal change, the results of this study indicate teachers may not fully recognize their capacity to bring about change beyond their classrooms.

## Conclusion

The Teachers' Sense of Multicultural Efficacy Scale is a new research tool designed to measure teachers' beliefs about their ability to teach in the context of multiculturalism. The TSMES outlines general competencies associated with teaching for social justice in addition to providing results that may be compared with a general efficacy scale. The product is a measure that may be used, like previous measures of general teaching efficacy, to compare teachers' sense of multicultural efficacy with educational outcomes. Such a tool is especially important for measuring student outcomes because it is often students who are shortchanged by teachers who are unprepared or unsupported. With evidence that disparities exist not only between general and multicultural efficacy but also between sub-domains of multicultural efficacy, teacher education programs can begin to specifically address multicultural experiences and attend to the role of teachers in social change. Ideally, the strong evidence provided by this study will encourage researchers to further examine the role of culture in classrooms and in teachers' self efficacy beliefs.

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Table 1. Final TSMES scale with descriptive statistics.

| | Item Statement | Min | Max | Mean | Std. Dev. | Skew | Kurt. |
|---|---|---|---|---|---|---|---|
| 1 | …ensure diverse students learn about their own cultural heritage in your class?[1] | 1 | 9 | 6.72 | 1.80 | -0.61 | -0.08 |
| 2 | …teach your students about cultural conflict? | 1 | 9 | 7.01 | 1.51 | -0.98 | 1.57 |
| 3 | …incorporate minority perspectives into your curricula? | 1 | 9 | 6.92 | 1.65 | -0.88 | 0.87 |
| 4 | …end cultural conflict in your classroom? | 1 | 9 | 5.96 | 2.02 | -0.30 | -0.70 |
| 5 | …change society's view of minorities? | 1 | 9 | 5.14 | 1.99 | -0.03 | -0.48 |
| 6 | …close the achievement gap between students of lower social/economic classes and students of higher classes? | 1 | 9 | 5.89 | 1.78 | -0.09 | -0.64 |
| 7 | …impact students' beliefs about cultural differences? | 1 | 9 | 6.61 | 1.64 | -0.73 | 0.56 |
| 8 | …teach what you believe is right, even when your view contradicts that of the community in which you teach? | 1 | 9 | 6.19 | 2.06 | -0.52 | -0.53 |
| 9 | …teach what you believe is right, even when your view contradicts school or district policy? | 1 | 9 | 5.30 | 2.17 | -0.15 | -0.77 |
| 10 | …impact the beliefs of people in your school's community? | 1 | 9 | 5.70 | 1.88 | -0.23 | -0.65 |
| 11 | …ensure minority students are held to the same academic and behavioral standards as other students? | 3 | 9 | 7.23 | 1.57 | -0.58 | -0.69 |
| 12 | …set aside any negative biases you may have in order to serve your students' best interests? | 2 | 9 | 7.70 | 1.47 | -1.43 | 2.05 |
| 13 | …teach a student who is motivated to learn but lacks the resources to do so? | 2 | 9 | 7.67 | 1.29 | -1.13 | 1.86 |
| 14 | …convince other teachers to teach about diversity? | 1 | 9 | 6.50 | 1.89 | -0.50 | -0.24 |
| 15 | …convince school administrators make social equality a part of school policy? | 1 | 9 | 6.32 | 1.87 | -0.47 | -0.25 |
| **TOTAL** | **TSMES** | **1** | **9** | **6.46** | **1.28** | | |

[1] All items are preceded by "How much can you do to…"

Table 2. TSMES Factor loadings for the 2-factor solution.

| | Factor | | | | |
|---|---|---|---|---|---|
| **Item** | **Individual** | **Societal** | **Mean** | **SD** | **α** |
| …ensure diverse students learn about their own cultural heritage in your class?[1] | 0.85 | | | | |
| …teach your students about cultural conflict? | 0.84 | | | | |
| …incorporate minority perspectives into your curricula? | 0.82 | | | | |
| …end cultural conflict in your classroom? | 0.73 | | | | |
| …impact students' beliefs about cultural differences? | 0.79 | | | | |
| …ensure minority students are held to the same academic and behavioral standards as other students? | 0.64 | | | | |
| …set aside any negative biases you may have in order to serve your students' best interests? | 0.57 | | | | |
| …teach a student who is motivated to learn but lacks the resources to do so? | 0.72 | | | | |
| …convince other teachers to teach about diversity? | 0.81 | | | | |
| …convince school administrators make social equality a part of school policy? | 0.75 | | | | |
| **FACTOR 1 (Individual)** | | | **6.86** | **1.29** | **0.92** |
| …change society's view of minorities? | | 0.75 | | | |
| …close the achievement gap between students of lower social/economic classes and students of higher classes? | | 0.70 | | | |
| …teach what you believe is right, even when your view contradicts that of the community in which you teach? | | 0.80 | | | |
| …teach what you believe is right, even when your view contradicts school or district policy? | | 0.77 | | | |
| …impact the beliefs of people in your school's community? | | 0.73 | | | |
| **FACTOR 2 (Societal)** | | | **5.64** | **1.59** | **0.86** |

[1] All items are preceded by "How much can you do to…"

Table 3. Results of the Factor 1 (individual) – Factor 2 (societal) paired-samples T-test.

| | Paired Differences | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | 99% Confidence Interval of the Difference | | | | |
| | Mean | Std. Deviation | Lower | Upper | t | df | Sig. |
| Individual Mean – Societal Mean | 1.22 | 1.15 | .98 | 1.47 | 13.02 | 150 | .000 |

Table 4. Results of the TSES-TSMES paired-samples T-test.

| | Paired Differences | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | 99% Confidence Interval of the Difference | | | | |
| | Mean | Std. Deviation | Lower | Upper | t | df | Sig. |
| TSMES - TSES | -.91 | 1.15 | -1.15 | -.66 | -9.49 | 145 | .000 |